REMARKS

Claims 1-20 are pending in the present application. Claims 1 and 16 are amended above. No new matter is added by the claim amendments. Entry is respectfully requested.

Claims 1-12 and 14-18 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Chung, *et al.* (U.S. Patent Number 6,884,675) in view of Basceri, *et al.* (US Patent Number 6,673,669). Claim 13 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Chung, *et al.* in view of Basceri, *et al.* and further in view of Narwankar, *et al.* (US Patent Number 6,677,254). Reconsideration of the rejection and allowance of the claims are respectfully requested.

In the present invention as claimed in independent claim 1, a method of manufacturing a capacitor of a semiconductor device includes "depositing a first dielectric layer on" a "first electrode", "curing the first dielectric layer", "depositing a second dielectric layer on the cured first dielectric layer using only a source gas without a reactant gas", and "forming a second electrode on the second dielectric layer without curing the second dielectric layer before forming the second electrode and without curing the second dielectric layer after forming the second electrode".

In the present invention as claimed in independent claim 16, a method of manufacturing a capacitor of a semiconductor device includes "depositing a first Ta_2O_5 layer on" a "first electrode", "curing the first Ta_2O_5 layer", "depositing a second Ta_2O_5 layer on the cured first Ta_2O_5 layer using only only $Ta(OC_2H_5)_5$ without a reactant gas", and "forming a second electrode on the second Ta_2O_5 layer without curing the second Ta_2O_5 layer before forming the second electrode and without curing the second Ta_2O_5 layer after forming the second electrode".

Chung, *et al.* is cited in the Office Action as disclosing a method of forming a semiconductor capacitor. As stated in the Office Action, in Chung, *et al.*, the second dielectric layer of Chung, *et al.* is cured prior to forming the second electrode. In Chung, *et al.*, each

deposition cycle of the atomic layer deposition process embodiment of each sub-layer of the tantalum oxide layer 120 involves four steps, a third step of which is the "inflow of ozone gas" (see Chung, *et al.*, column 5, lines 29-33). This inflow of ozone gas operates as a curing process for tantalum precursor deposited at step 1 of the cycle, much in the same manner as that discussed in the Background of the Invention section of the present patent application, and as shown at steps $C_1...C_n$ of FIG. 1 of the present application, which leads to the limitations discussed at page 2, line 26 - page 3, line 4 of the present application. Chung, *et al.* therefore fails to teach or suggest "forming a second electrode on the second dielectric layer without curing the second dielectric layer before forming the second electrode and without curing the second dielectric layer after forming the second electrode", as claimed in claim 1. Chung, *et al.* also fails to teach or suggest "forming a second electrode on the second Ta_2O_5 layer without curing the second Ta_2O_5 layer before forming the second electrode and without curing the second Ta_2O_5 layer after forming the second electrode", as claimed in claim 16. In Chung, *et al.*, the uppermost dielectric layer is cured before forming the second electrode. Chung, *et al.* further fails to specifically teach or suggest "depositing a second dielectric layer on the cured first dielectric layer using only a source gas without a reactant gas", as claimed in claim 1. Chung, *et al.* also fails to specifically teach or suggest "depositing a second Ta_2O_5 layer on the cured first Ta_2O_5 layer using only only $Ta(OC_2H_5)_5$ without a reactant gas", as claimed in claim 16.

Basceri, *et al.* is cited in the Office Action as teaching a method of reducing oxygen vacancies in a dielectric layer of a capacitor. In the examples presented in the Basceri, *et al.* reference at column 5, line 30 - column 6, line 4, oxygen is caused to diffuse through previously applied electrode layers 34, 36 into the lower dielectric region 32 according to various disclosed techniques. In this manner, the Basceri, *et al.* dielectric region 32 is cured by exposure to the diffused oxygen, thereby filling oxygen vacancies in the capacitor dielectric region 32 (see Basceri, *et al.*, column 5, lines 14-19).

Basceri, *et al.* fails to teach or suggest "forming a second electrode on the second dielectric layer without curing the second dielectric layer before forming the second electrode

and without curing the second dielectric layer after forming the second electrode", as claimed in claim 1. In Basceri, *et al.*, the dielectric region 32 is cured after forming the second electrode. Basceri, *et al.* further fails to specifically teach or suggest "depositing a second dielectric layer on the cured first dielectric layer using only a source gas without a reactant gas", as claimed in claim 1.

Basceri, *et al.* further fails to teach or suggest "forming a second electrode on the second Ta_2O_5 layer without curing the second Ta_2O_5 layer before forming the second electrode and without curing the second Ta_2O_5 layer after forming the second electrode", as claimed in claim 16. In Basceri, *et al.*, the dielectric region 32 is cured after forming the second electrode. Basceri, *et al.* also fails to specifically teach or suggest "depositing a second Ta_2O_5 layer on the cured first Ta_2O_5 layer using only only $Ta(OC_2H_5)_5$ without a reactant gas", as claimed in claim 16.

Neither Chung, *et al.* nor Basceri, *et al.* teaches or suggests "forming a second electrode on the second dielectric layer without curing the second dielectric layer before forming the second electrode and without curing the second dielectric layer after forming the second electrode" or "depositing a second dielectric layer on the cured first dielectric layer using only a source gas without a reactant gas", as claimed in claim 1. Further, neither Chung, *et al.* nor Basceri, *et al.* teaches or suggests "forming a second electrode on the second Ta_2O_5 layer without curing the second Ta_2O_5 layer before forming the second electrode and without curing the second Ta_2O_5 layer after forming the second electrode" or "depositing a second Ta_2O_5 layer on the cured first Ta_2O_5 layer using only only $Ta(OC_2H_5)_5$ without a reactant gas", as claimed in claim 16. Accordingly, it is submitted that the combination of Chung, *et al.* and Basceri, *et al.* fails to teach or suggest the invention as claimed in claims 1 and 16. Reconsideration of the rejection of, and allowance of, claims 1 and 16 are respectfully requested. With regard to the dependent claims 2-15, 17 and 18, it follows that these claims should inherit the allowability of the independent claims from which they depend.

With regard to the rejection of claim 13, Narwankar, *et al.* is cited in the Office Action as disclosing forming an oxygen atmosphere by supplying gas in a thermal heated operation or in an RF plasma. Like Chung, *et al.* and Basceri, *et al.*, Narwankar, *et al.* fails to teach or suggest "forming a second electrode on the second dielectric layer without curing the second dielectric layer before forming the second electrode and without curing the second dielectric layer after forming the second electrode", as claimed in claim 1. Accordingly, it is submitted that the combination of Chung, *et al.*, Basceri, *et al.* and Narwankar, *et al.* fails to teach or suggest the invention as claimed in claim 1. Reconsideration of the rejection of, and allowance of, claim 13 which is dependent from claim 1 are respectfully requested.

Closing Remarks

It is submitted that all claims are in condition for allowance, and such allowance is respectfully requested. If prosecution of the application can be expedited by a telephone conference, the Examiner is invited to call the undersigned at the number given below.

Respectfully submitted,

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Mills & Onello, LLP
Eleven Beacon Street, Suite 605
Boston, MA 02108
Telephone: (617) 994-4900, Ext. 4902
Facsimile: (617) 742-7774
J:\SAM\0477\amenda\amendmenta2.wpd

Anthony P. Onello, Jr.
Registration Number 38,572
Attorney for Applicant